

CLAIMS

1. An optical plate (12; 32) comprising on a first side a first set of at least two optical elements (14; 34) designed to bend rays (R_I) received from a light source into a beam of rays (R_{int}) that are essentially parallel to a first direction in a plane containing a main axis (AA'), characterized by means (16; 36) on the second side to bend said beam in a second direction (R_C) different from the first direction (R_{int}).
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2. The optical plate as claimed in claim 1, in which the second side bears at least one first optical element (16; 36) to bend the beam in the second direction (R_C).
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3. The optical plate as claimed in claim 2, in which the first optical element (16; 36) comprises at least one side (26; 42) having an orientation such that the rays in the first direction (R_{int}) are refracted in the second direction (R_C).
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4. The optical plate as claimed in claim 3, in which the second side bears a second optical element having a side that is essentially parallel to said side of the first optical element in said plane.
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5. The optical plate as claimed in claim 1, in which the second side includes a holographic device to bend the beam in the second direction (R_C).
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6. The optical plate as claimed in one of claims 1 to 5, in which the optical elements (14; 34) have symmetry of revolution about the main axis (AA') and in which the second direction (R_C) is directed essentially in line with the main axis (AA').
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7. The optical plate as claimed in one of claims 1 to 6, in which the optical elements (14) are designed to bend the rays from the source by refraction.
- 5 8. The optical plate as claimed in one of claims 1 to 6, in which the optical elements (34) each include a side (38) designed to reflect the rays (R_I) from the source in the first direction (R_{int}).
- 10 9. The optical plate as claimed in any one of claims 1 to 8, characterized in that the first set of at least two optical elements is designed to bend rays received from a light source into a beam of rays forming an angle less than or equal to 3° with the first direction.
- 15 10. The optical plate as claimed in any one of claims 1 to 9, characterized in that the second direction forms an angle greater than or equal to 10° with the first direction.
- 20 11. A projection display device comprising:
- means of generating an image (2, 4);
- means (6) of projecting the image onto a screen
25 (10);
- the screen (10) comprising at least one optical plate (12; 32),
in which the optical plate (12; 32) conforms to one of claims 1 to 8.
- 30 12. The display device as claimed in claim 11, in which the projection means (6) are such that the rays (R_I) are received by the optical plate (12) with orientations (θ) relative to the general
35 direction of the optical plate (12) varying over a continuous range of non-zero orientations relative to the main axis (AA') and in which the first direction (R_{int}) corresponds to one (θ_{int}) of the orientations of said continuous range.